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Subject: January 1, 2003 Index of Winter Severity  
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Here are the Index of Winter Severity (IWS) values for January 1, 2003.

The Index of Winter Severity (IWS) is obtained by combining snow water equivalent, critical temperature, and forage availability components to reflect conditions on the winter range. The IWS has a scale from +4 to -4, with +4 representing the mildest conditions and -4 indicating the most severe conditions. The IWS is calculated for each winter range and each species to represent the variation from the norm. It is intended to provide a spatially and temporally standardized indication of climatic conditions on the winter range. The response of individual animals, or groups of animals will vary depending on a variety of factors.

The IWS procedure is described in detail in our report Snowpack Distribution Across Yellowstone National Park, Wyoming. This report, along with daily weather data for the area are available online at <http://nrin.nbj.gov/climate/>.

This winter's snowpack is well below average across the entire area, generally between 40 to 77% percent of normal. Temperature conditions are also milder than average. However, forage production indices for last summer point to below average production on the winter ranges.

Winter Range	For Winter of 2003 to			
	Jan 1	Feb 1	Mar 1	Apr 1
<u>Elk</u>				
Northern Range in Montana	+1.4			
Lower Northern Range in YNP	+1.6			
Upper Northern Range (Lamar)	+1.7			
Madison-Firehole	+1.4			
Upper Gallatin	+1.7			
<u>Bison</u>				
Lower Northern Range in YNP	+1.1			
Upper Northern Range (Lamar)	+1.7			
Pelican-Hayden Valley	+0.5			
Madison-Firehole	+0.9			
<u>Mule Deer</u>				
Lower Northern Range	+1.5			
<u>Pronghorn</u>				
Lower Northern Range	+1.0			

-4.0 Worst Winter

0.0 About Average Winter

+4.0 Mildest Winter

Index for elk uses 45% snow variable, 35% temperature variable (0°F) and 20% forage variable.

Index for bison uses 70% snow variable and 30% forage variable.

Index for mule deer uses 50% snow variable, 30% temperature variable (0°F) and 20% forage variable.

Index for pronghorn uses 55% snow variable, 30% temperature variable (32°F) and 15% forage variable.

**The Index of Winter Severity program is a cooperative effort of the [USGS Northern Rocky Mountain Science Center's](#) Greater Yellowstone Initiative and Snowcap Hydrology.**

## Snow Water Equivalent values:

	Snow Water Equivalent, Inches		
		Avg*	Percent
	Jan 1	Jan 1	of Average
Canyon Pillow	4.6	6.1	75%
Crevice Mountain snow course	NM	--	--
Hebgen Dam snow course	3.3	5.1	65%
Lake Camp snow course	3.0	4.2	71%
Lamar RS CLIM	0.7	1.6	44%
Lupine Creek snow course	2.0	4.3	47%
Norris Basin snow course	2.7	5.1	53%
Northeast Entrance Pillow (new)	2.7	5.0	54%
Old Faithful snow course	4.6	6.0	77%
Tower RS CLIM	1.2	2.1	57%
Twenty One Mile snow course	3.5	7.3	48%
West Yellowstone Pillow (new)	3.5	5.9	59%
Whiskey Creek Pillow	5.0	7.5	67%
Yellowstone Park (Mammoth) CLIM	0.4	1.0	40%

\* 1971-2000 Base Period

NM – not scheduled for measurement

CLIM SWE is estimated from the weather data. The procedure is described in detail in our report Snowpack Distribution Across Yellowstone National Park, Wyoming.

Note see: <http://www.mt.nrcs.usda.gov/swcs/index.html> or

[http://www.wcc.nrcs.usda.gov/water/w\\_data.html](http://www.wcc.nrcs.usda.gov/water/w_data.html) for a complete list of snow measurements in the area.